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Experiment in Mutton Production

Animal Husbandry

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AN EXPERIMENT IN MUTTON PRODUCTION

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THESIS

FOR THE DEGREE OF BACHELOR OF SCIENCE

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THIS IS TO CERTIFY THAT THE THESIS PREPARED UNDER MY SUPERVISION BY

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OF Bachelor of Science

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An Experiment in Mutton Production.

The extensive increase in the production of mutton during the last few years, is attracting the attention of the farmer of Illinois. He is beginning to realize the fact that the grain he raises may be turned into mutton with good profit. As very few experiments in the production of mutton have been carried on in this state, the authors choose it for the subject of thesis work. That it might be practical to the farmer, the ordinary

rotation crops were fed. These were shelled corn, oats, gluten meal, and clover hay. The meal was used to test the advisability of buying a concentrated feed.

The lambs used in this experiment were sixteen high-grade Shropshires, averaging about sixty-three pounds. They were purchased through Clay Robison & Co. of Chicago from a lot shipped from Michigan. Upon arriving at the University Farm on February 1, they were placed in an open paddock and fed clover hay until February 7, when they were put in pens in the basement of the dairy barn. At this time the lambs were weighed and divided into lots of four, each lot being as uniform in quality and weight as possible. In order that individual records might be kept, each lamb was tagged with a metal ear tag. From February 7 to February 19, when the experiment proper began, they were fed a liberal ration of clover hay, and one half pound of oats twice a day.

During the experiment each lot was confined in a pen 10 × 6 ft with a hay trough at one end, and grain and salt troughs at the other end. Large candy pails were used to supply water. The pens were kept well bedded with shredded corn or oat straw.

Beginning with February 23, each lot was fed the different grain rations, and accurate records kept of the amounts eaten. In case any grain was left in the trough from the previous feeding it was weighed back, and not offered again. The coarse stems of the clover hay which were refused in different amounts by the different lots were weighed back and deducted from amounts fed. The lots were fed in regular order twice daily; at 8 a.m. and 2 p.m. Salt and water were kept constantly before them. The lambs were weighed every Saturday forenoon between ten and eleven o'clock. The weighing was done by hanging the lambs in a double belly-band upon a steel-yard

suspended from the ceiling by a chain in each pen. Although it is usual in feeding experiments to weigh the animals on three consecutive days, and take the average as the weight for the middle day, yet the weights were taken so often in this experiment that the possibility of error was greatly reduced.

The corn, oats and hay used were raised near Champaign. The gluten meal was purchased from The American Glucose Refining Company of Chicago.

The last weights were taken on April 27, as this was the end of a feeding period. The food eaten that evening and the next day does not appear in the tables. On April 25, the lambs were shipped from Champaign so as to arrive in Chicago for the Monday Market. Clay, Robinson & Co. sold them to Nelson Morris & Co. who kindly weighed and slaughtered each lot separately. They were weighed at 11 a. m. and slaughtered at 1 P. M.

Tables 1, 2, 3, and 4 give weekly records of feed and the individual and total gains of the different lots. All the lots

received clover hay for roughage, and the grains fed will be mentioned in the discussion of each table. It will be noticed that in all lots the grain was gradually increased until the week ending April 20. At this time, the weather became warm and the lambs would not eat as much as before.

Table No. I is a record of lot 1 which received shelled corn as a grain ration. During the weeks ending March 16, and 25 and April 13, all the lambs were off feed one day of the week. In the first of these weeks No. 68 and 70 were off feed two days. No 71 which gained the least, and showed poor quality in the slaughter test, suffered with catarrh during the last half of the experiment. Otherwise this lot made the most uniform gains.

Table No. II gives the data for lot 2 which was fed shelled corn and gluten meal, two to one by weight. This lot has the highest total gain, and No. 74 of this lot made the

greatest individual gain. It will be noticed in this table as well as in the others, that the best gains were made in a period immediately following one of a loss or of a small gain. This is particularly noticable with Nos. 67 and 74 in the period ending with March 16. Lambs Nos. 67 and 76 were of poor conformation with the long neck and narrow pointed back characteristic of poor feeders. The other two had exceptionally good conformation. No. 67 was off feed one day during the first week. The sudden decrease in the amount of feed in the week ending March 23 was caused by Nos 67 and 76 refusing to eat grain for three days. During the week ending with April 20 No. 76 was again off feed for three days.

Table No. III is a record of lot 3 which received equal parts by weight of corn and oats. As to conformation this lot was the most uniform, and it is to be noted that the variations in weekly individual gains are not so great as in the other lots.

None of the lambs in this lot were off feed during the experiment.

Table No II records the feed and gains of lot 2 which were fed oats as a grain ration. Here we find the lowest total gain, and with the exception of No. 52, the lowest individual gains. This lot kept in good feeding condition throughout the experiment. The question as to whether or not lambs would choke when fed freely on oats, was very decidedly answered in this experiment for they were fed as much as 2¼ lbs. of oats a day with no bad results.

In examining the records of gains, perhaps the most striking fact derived is the variation in individual gains. Of the entire sixteen none gained continuously, and only three, Nos 76, 76, and 80, are without a loss during some period. As these three appear in different lots the variations must have been due to the individuality of the animals, rather than to the feed.

Table No. I is a summary of the first four tables, with the addition of

one column for total dry matter, and one for the nutritive ratio of the ration fed. This table furnishes an interesting comparison of the quantities of hay eaten with the different grain rations. The variation is not easily accounted for. Lot 1 ate 4 1/4 lbs. hay more than lot 2, and 9 lbs less grain. Although the total dry matter consumed by lot 1 was 22 lbs more than lot 2 yet the second lot gained 16 lbs more than the first lot. Lots 3 and 4 ate more grain and less hay than the first two lots. The supposition is that the vat bulk made up in part for the decrease in hay consumed.
Although no records were kept of the salt and water furnished, yet it was a noticable fact that lots 1 and 2 took more of both than did the last two lots.
In regard to the nutritive ratio, little need be said other than that the ration nearest the standard for fattening sheep as given in Henry's Feeds and Feeding, produced the greatest gain. However

the least gain did not occur in the ration farthest from the standard

Table No VI is perhaps the most valuable to the feeder, as it shows the relative amounts of the different grains used to produce 100 lbs of gain. As regards the slaughter test, lot 1 contained one poor lamb, - No. 70 -, otherwise the quality would have been in the regular order of the lots. In looking over the carcasses it was noticed that the first two lots had the fat most evenly distributed through the meat, and the flesh was thicker, and more even on the back and sides. The lambs in lot four had a large amount of internal and kidney fat, and but little on the back and sides. Lot no. 3 was better than no. 4 but inferior to the first two lots, which differed very little in general appearance.

The per cent of dressed Wt for lots 1 and 2 was good for wooled lambs, while lot 3 was fair, and lot 4 rather poor.

Even the best lambs were not highly finished and would have been better

for a few weeks more feeding, but the weather was getting warm, and as it was impossible to give them any out door exercise it was not thought advisable to feed them longer.

It will be seen from these tables that lot 2 gave the best gains but did not dress out as well as lot 1 and that lot 4 ate more grain than any of the others and produced the least gain. From this experiment we conclude that shelled corn as fed to lot 1 is the best feed for fattening lambs for this lot made high gains and dressed out the best.

Although averages are very unsatisfactory, and many times deceptive, yet it may be of interest to know the daily averages of feed and gains as they appear in Table No. 7. The ~~average~~ minimum amount of grain fed per day was 1 1/2 lbs, while the maximum as fed in the seventh week was 2 1/4 lbs per lamb.

TABLE Nº I

Weekly record of lot number 1.

Week ending	Grain in lbs.	Hay in lbs.	Gain in pounds.				
			№69	№70	№71	№72	Lot.
March 2	16½	21	1	1	1	1	4
" 9	49	24½	1	3	5	1	10
" 16	46½	25	5	3	5	5	21
" 23	45	17½	3	4	4	6	17
" 30	50	24¾	3	5	4	-1	11
April 6	51	25½	5	-2	2	1	7
" 13	51	20½	2	4	7	7	20
" 20	52	24½	-3	5	-1	0	1
" 27	45	24½	12	3	2	5	22
Totals	450	207¼	29	26	29	34	118

TABLE N°II

Weekly record of lot number 2

Week ending	Grain eaten	Hay eaten	Gain in pounds lo.				
			#67	#73	#74	#75	Lot
[illegible] 12	41	5	5	4	1	0	11
" 9	10	5	-1	-2	-1	1	-1
" 16	51½	17½	10	7	12	4	33
" 23	14½	6½	6	7	7	4	18
" 30	33	17	6	2	3	2	7
April 6	51½	15½	6	-1	4	5	17
" 13	61¼	15¼	7	5	8	4	24
" 20	55	20	6	6	1	0	1
" 27	54	20	4	6	2	2	14
Totals	459	166	27	36	40	23	133

TABLE Nº III

Weekly record of lot number 3

Week ending	Grain in pounds	Hay in pounds	Gain in pounds				
			1868	1876	1878	1881	Total
March 2	43½	13½	1	6	6	4	5
" 9	41	11	1	6	3	2	12
" 16	52½	13	5	5	3	1	14
" 23	55½	14	6	3	7	1	25
" 30	51½	15½	-2	1	1	-2	-2
April 6	60	13½	3	10	2	3	18
" 13	61	11	-1	1	-1	5	4
" 20	51	12	6	5	3	2	21
" 27	62	16	6	5	4	3	23
Totals	477	135½	25	30	27	32	120

TABLE Nº IV

Weekly record of lot number 4

Week ending.	Grain in pounds.	Hay in pounds.	Gain in pounds.				
			No. 1	No. 2	No. 3	No. 4	Lot.
March 2	4 5	14 ½	1	-1	3	4	10
" 9	4 9	15	2	1	2	-1	4
" 16	5 2½	17 ½	6	6	3	4	17
" 23	5 3	12 ½	7	4	0	6	17
" 30	5 3½	12 ½	-4	-1	2	4	1
April 6	54	11 ½	2	6	3	-1	10
" 13	61	7 ¼	5	2	2	6	15
" 20	47	3 ¼	-2	0	2	2	2
" 27	55½	10 ¼	6	6	4	8	24
Totals	47 0½	125 ¼	26	21	32	32	100

TABLE N°V

Summary

Lot	Grain	Hay	Total Dig. Matter	Gain	Nutritive Ratio
1	150	20 1/2	576.49	118	1 : 5
2	459	166 1/4	554.21	133	1 : 4.3
3	491	135 1/2	557.30	120	1 : 4.4
4	470	125 1/4	524.53	100	1 : 6.1

TABLE No. VI

Feed per 100# gain with slaughter tests

Lot	Grain	Hay	Total dry Matter	% dressed weight	Quality
1	381	117.5	453.5	55.4	3rd "
2	345.1	125	416.7	53.1	1st "
3	414.1	112.1	464.1	48.6	2nd "
4	470.5	125.2	524.5	47.	4th "

TABLE Nº VII

Average individual feed and gain per day

Lot	Grain	Hay	Gain
1	1.75	.52	.41
2	1.82	.65	.52
3	1.87	.53	.41
4	1.56	.47	.34

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